A. Vehicles with York refrigerant compressor

Oil capacity

Oil type cold-flowing oil (for approved cold-flowing oils refer to Specifications for Service Products, page no. 361)

		min.	normal	max.
Oil level at Oil quantity in cc		180	240	300
Refrigerant compressor	Dipstick depth (mm)	22	25	28

Tightening torque	Nm	(kpm)
Oil check plug	6–8	(0.6–0.8)

Conventional tools

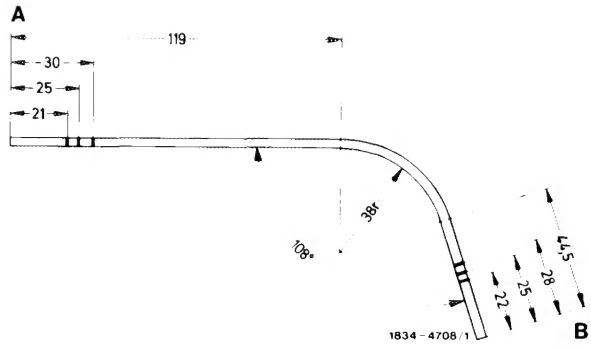
Open-end wrench 1/2 x 9/16"	
Assembly tester with 3 filling hoses or evacuating and filling device for air-conditioning system	e.g. made by Christof Fischer, Augsburger Str. 289 D-7000 Stuttgart 60

Self-made tool

Oil dipstick for refrigerant compressor

3 notches each at specified spacings
flat length: 210 mm
material: brass wire dia. 3 mm

A = horizontal installation
B = vertical installation



Note

Check oil charge of refrigerant compressor prior to each refill of refrigerant or when refrigerant or oil has been lost.

Since a certain quantity of oil is picked up by the refrigerant and will get into the system, a loss of refrigerant may also include a loss of oil.

Oil level in compressor should never be below a minimum level of 180 cc or a maximum of 300 cc.

Too much oil is detrimental for operation of system and will also result in reduced efficiency of air-conditioning system.

When the refrigerant compressor is replaced, the oil volume of new compressor should not exceed the normal oil level.

All compressors were filled with approx. **0.3 liter of cold-flowing oil** by the manufacturer. Under normal conditions, oil must either be changed or added. **Never fill in machine or engine oil.**

The oil dipstick for measuring the oil level in refrigerant compressor must be self-made.

Attention
If only a small quantity of refrigerant (up to approx. 200 g per year) need be added, no oil level checkup is required.

Checking the oil level

1 Drain air-conditioning system (83–518).

2 Slowly turn out oil check screw (b) and slowly evacuate any pressure still prevailing in crankcase.

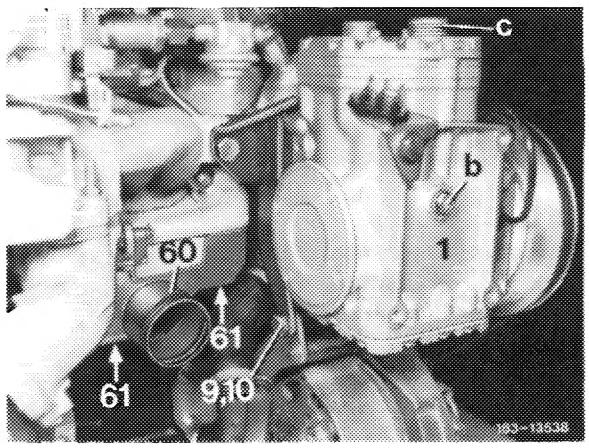
3 Turn crankshaft of refrigerant compressor so that the splining on crankshaft stub is in upward direction. If the position of the splining cannot be recognized, (refrigerant compressor with built-in electromagnetic clutch), rotate crankshaft by feel until the oil dipstick can be pushed through to lowest part of crankcase.

4 Clean oil dipstick and measure oil level.

5 Renew O-ring on oil check screw and moisten with cold-flowing oil.

6 Mount oil check screw.

7 If a subsequent leak test indicates a leak at screw, the leak cannot be repaired by tightening screw still further. Cause of leak may be either dirt under O-ring, a damaged O-ring or damaged seats on screw or compressor housing.



B. Vehicles with Delco refrigerant compressor

Oil capacity

Oil type cold-flowing oil (for approved cold-flowing oils refer to Specifications for service products, page No. 362)	
Oil filling capacity new in refrigerant compressor	170 cc

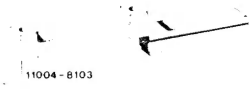
Oil capacity when working on system

Jobs	Quantity of cold-flowing oil to be filled in
Renew refrigerant compressor (system **not** flushed with R 11) oil quantity drained from old compressor above 40 cc. [1])	Drain cold-flowing oil from removed compressor and measure quantity. Also drain cold-flowing oil on new compressor and store in closed condition. Fill same quantity as in removed compressor into new compressor (fresh oil).
Renew refrigerant compressor (system not flushed with R 11), oil quantity drained from old compressor below 40 cc. [1])	see above, but fill in 90 cc cold-flowing oil.
Renew refrigerant compressor (System flushed with R 11 first). [1])	Do not fill-in cold-flowing oil.
Recondition refrigerant compressor (drained oil quantity above 40 cc) [1])	Fill drained quantity of oil and additionally 30 cc (1 oz) into compressor.
Recondition refrigerant compressor (drained oil quantity below 40 cc) [1])	90 cc
Add refrigerant to system (up to 200 g).	Do not fill in cold-flowing oil.
Add refrigerant to system (more than 200 g) or, in the event of leaks, fill up completely with fresh oil.	30 cc
Renew condenser	50 cc
Renew evaporator	70 cc
Renew receiver dehydrator	40 cc

[1]) Renew receiver dehydrator, but do not add any cold-flowing oil into receiver dehydrator.

Tightening torques	Nm	(kpm)
Screws M 12 refrigerant compressor to support	60 + 10	(6 + 1)
Screw pipeline to refrigerant compressor	50 ± 3	(5 ± 0.3)
Hose line from evaporator to pipeline 7/8"	29–37	(2.9–3.7)
Hose line from pipeline to condenser 7/8"	29–37	(2.9–3.7)

Special tools

Holding device for refrigeration compressor	 11004-8103	116 589 14 31 00
Pressing-off plate for refrigerant compressor	 11004-7632	109 589 00 25 00

Conventional tools

Double open-end wrench 1/2" x 9/16", 5/8" x 3/4", 7/8" x 15/16", 1" x 11/8" Socket 14 mm, 3/8 square	
Assembly testing device with 3 filling hoses or evacuating and filling device for air-conditioning system	e.g. made by Christof Fischer, Augsburger Str. 289, 7000 Stuttgart 60
Oil pump order no. 823-2250	

Note

If the system has been flushed with R 11, it is not necessary to drain cold-flowing oil from new refrigerant compressor (no compressor oil need be filled in). Be sure to install a new receiver dehydrator.

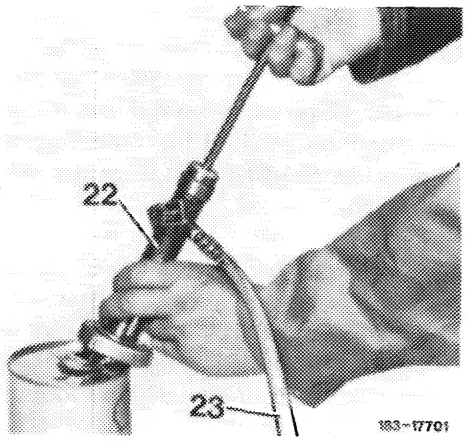
In the event of a refrigerant loss of up to 200 g over an extended period, no topping-up of cold-flowing oil is necessary. If more than 200 g of refrigerant are topped up, the air-conditioning system should be checked for leaks.
The specified quantity of cold-flowing oil can be forced into filled air conditioning system by means of an oil pump. If fresh oil must be filled in, add approx. 30 cc cold-flowing oil into system prior to evacuation.

The 4-cylinder refrigerant compressor has a change of approx. 170 cc (6 oz) of cold-flowing oil. Since this refrigerant compressor has not been provided with an oil sump, a certain quantity of oil will circulate during regular operation in the air-conditioning system together with the R 12 compound. If one component of the system must be replaced, fill a certain quantity of oil directly into the new component.

Adding cold-flowing oil with oil pump, with refrigerant installed and air conditioning system filled

Note: Connect oil pump (22) to refrigerant circuit first, then determine accurate volume of oil pump by sucking-in and forcing-out cold-flowing oil several times.

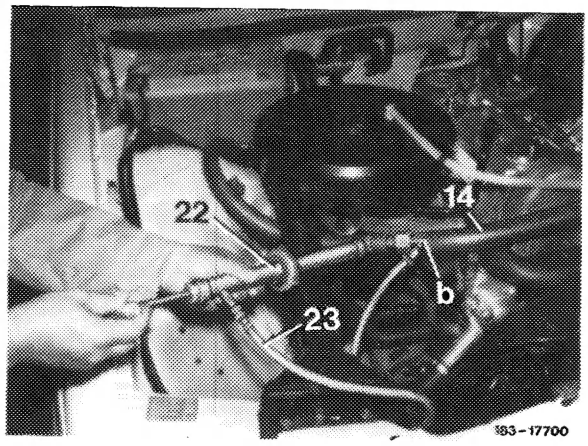
1. Put cold-flowing oil into a measuring cup and draw-in with oil pump (22).



2 Remove closing cap from service valve (b) on hose line (14).

3 Connect oil hose (23) of oil pump (22) to service valve (b) and force oil quantity into system.

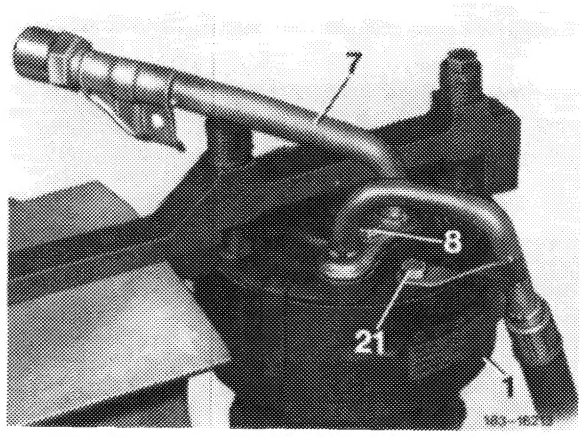
4 Disconnect oil hose (23) and screw closing cap to service valve.



Filling oil into refrigerant compressor

5 Remove refrigerant compressor together with pipeline (83–522).

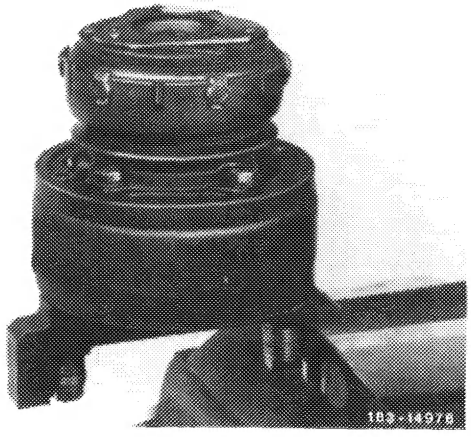
6 Screw-off pipeline (7) from refrigerant compressor (1) and collect cold-flowing oil flowing off.



7 Let oil flow out from refrigerant compressor, while holding refrigerant compressor with shaft end in upward direction, and let oil flow out for approx. 10 minutes through pressure or suction port. By rotating clutch shaft several times, flowing out of oil will be accelerated.

8 Let cold-flowing oil flow out from new refrigerant compressor, as described under item 3.

9 Determine quantity of oil flown out from original refrigerant compressor and pipeline.



10 Add the same quantity of fresh oil into new refrigerant compressor through suction port if a drained oil quantity of more than 40 cc has run out of removed refrigerant compressor and the system has **not** been flushed with R 11. If the drained quantity of oil is less than 40 cc, add 90 cc into new refrigerant compressor.

11 If the refrigerant compressor is reconditioned, let cold-flowing oil run out of refrigerant compressor as described under item 3. If the drained quantity of oil is more than 40 cc, add the drained quantity and an additional 30 cc of oil into regriferant compressor. If the drained quantity of oil is less than 40 cc, add 90 cc of cold-flowing oil into refrigerant compressor.

12 Screw-on again pipeline (7), while checking O-ring for correct seat, and provide with cold-flowing oil.

13 Install refrigerant compressor together with pipeline (83–522).